

# Micropayments

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Class Site

## Contents:

- [What is a micropayment?](#)
- [Why do we need them?](#)
- [Examples of micropayments.](#)
- [How micropayments work.](#)
- [Who provides them?](#)
- [Why aren't they working?](#)
- [What's next?](#)
- [Additional Resources](#)

## What is a micropayment?

The Internet permits access to small items that should be cheap (See [Examples](#)). This is especially true for receiving small bits of information from website and articles. The overhead, both in terms of processing and customer time of paying with credit cards or [PayPal](#), is high. A customer pays a trivial fee for each piece of information or media the customer wants to download. For example, Napster could charge 25 cents for each mp3 downloaded. The 25 cents, when multiplied by several million, would generate significant revenue. Similarly, an online article archive could charge 1/10th of a cent for each article viewed. The online retailers and original providers would make some profit in both cases -- there would large savings in their operations because there is no packaging, shipping, or storage cost. Micropayments simply facilitate this transfer of arbitrarily small payments. It would serve as a type of online wallet, where electronic cash would be used for purchases.

[Back to the top](#)

## Why do we need them?

In this information age, and age of the Internet, smaller and smaller payments are becoming a possibility due to the ease of information

## • Micropayments

sharing. There is no need for a physical store, employees to sell the merchandise, or store maintenance. True, an online business needs to purchase web space, bandwidth, and maintain the site, but this cost is trivial compared to a physical business. Thus, an online magazine or newspaper can charge a few cents, or even a fraction of a cent, to view an article.

Currently, the major payment method online is through credit cards, with each transaction costing the online store fixed transaction costs in addition to a percentage of sales. For example, the average business pays the credit card companies 30 cents plus 2.5 percent of the purchase price for each transaction. Smaller businesses may have to pay up to 3.5 percent per transaction. On the other end, large businesses may pay less than a percent with an additional fee based on total sales. While payments remain large, this poses no problem for small businesses. However, as the size of the payments decrease, the paperwork and overhead costs stay the same size, so the store loses money in volume. This problem also holds true off-line, real world stores. This is why there is often a minimum purchase amount required before they accept credit cards. No matter the size of the company, credit card companies lose appeal when the transaction amounts fall below a certain threshold, usually between \$1 and \$10. At a time when "forty percent of online merchants want to sell items for under \$10," the micropayment would assist in allowing these purchases (Hurwicz). Also, credit cards can be a burden to be used by the customers. Most users figure that it is too much of a hassle to enter an entire list of information including name, credit card number, and address just to spend a few cents - just as no one would use a credit card in a real store for a 3 cent purchase. Thus, the micropayments would be an online substitute for the physical wallet for these small payments.

Some Internet businesses are currently unfeasible because of this problem, specifically businesses interested in selling small items with intellectual contributions. The creation of micropayments would open up this market, but this market needs micropayments to exist. This is like a chicken and the egg dilemma. People must create a desire and be motivated to create this market.

[Back to the top](#)

### Example Uses For Micropayments:

Send Payment	Receive Payment
• Newspapers and Magazines Articles Online	• Fill Out Survey
• View Online Data	• Complete Forms
• Books Purchased by the Chapter or Page	• Win a Game
• Donations to People Whose Website You Enjoy	• View an Advertisement
• Purchase a Term Paper	
• Music and Video on demand	
• Games	
• Lotto	

## ..Micropayments

[Back to the top](#)

### How micropayments work.





There are many different micropayment companies in existence right now, and each uses slightly different payment schemes. There are two main plans to pay for the micropayments. The first requires an initial payment into the micropayment account through a credit card. Once the money is secured, the online account - sometimes called a Wallet - will have a declining balance, against which payments are charged. The alternative form of payment is to have the payments charged to the monthly Internet service provider (ISP) bills or phone bills. This second way could also have the option of adding money through cards purchased at a store - similar to a phone card.

A main difference between different micropayment companies is in the software. Some argue that a program installed on the client's computer would simplify and secure the transactions. However, others argue that installing another program would deter many consumers.

[Back to the top](#)











### Who provides them?

There are many companies providing micropayments, all ranging in status from operational to temporarily closed. These companies still have websites running:

		<a href="#">SOX from Systemics</a>
<a href="#">Cartio</a>	<a href="#">NetBill Carnegie Mellon University</a>	<a href="#">Trivnet</a>
 <a href="#">clickshare</a> <a href="#">clickshare service corporation</a>	 <a href="#">NTSys</a>	
<a href="#">ClickShare</a>		

6/20/2005

## Micropayments

	 <b>NEWGENPAY</b> NEW GENERATION OF PAYMENTS		<u>The Ultimus Solution</u>
<u>DigiCash</u>	<u>NewGenPay MicroPayments</u>		<u>Wave Systems Corp</u>
 <b>Enition</b>	<b>divine</b>  <b>OPEN MARKET</b> CONTENT-DRIVEN eBUSINESS SOLUTIONS	 The Value of Trust™ <u>VeriSign</u>	 <u>Visa</u>
	 <b>QPASS</b>	<u>Qpass</u>	
<u>Internet Dollar</u>	<b>COMPAQ</b> digital products and services	<u>Millicent by Compaq</u>	

<http://www.stanford.edu/~imh/micronavments/micropayments.htm>

## Micropayments

[Back to the top](#)

### Why aren't they working?

There are many contributing factors as to why micropayments are not currently working. One cited cause is people do not know about their existence or do not fully trust it - users and merchants are afraid of the unknown. This problem was seen before through credit cards. Vendors were hesitant to buy additional equipment to handle these payments, but over time the merchants realized that it was far more profitable to pay for the scanners and equipment than to not allow for credit cards. Similarly, merchants are hesitant to rely upon new technology or spend the effort on new software and linking to third party sites. In the end, merchants may see the gain from investing in micropayments outweigh the costs.

Another main contributor, but tied into the lack of trust, is not having an established standard. There are dozens of companies all wanting to be the one to take dominance, each with its own set of rules and protocols. Specifically, there were no specifications for a Per Fee Link Handler (PFLH) or a standard API to interface with the e-wallet to the PFLH. These specific standards are needed to have a universal online payment system.

A final, but often considered the most viable, reason is that people prefer subscriptions over pay-per-view payment schemes. If people have a choice, they would chose to pay a flat rate for a subscription, rather than just pay for an article or two for a fraction of the cost. Also, people do not want to have to think about payment options and whether they are getting a good deal on content. Human nature, it would seem, dictates the failure of micropayments for pay-per-view schemes. However, the problem with subscription buying is that people do not know exactly what they are buying, and over time, the services can change. The online community is very dynamic and what is the topic of a site today may be drastically different a few months later. So allowing a user to purchase individual articles would make online buying more appealing.

"If you get inside the consumer's mind," says Norman Guadagno, the vice president of marketing at Qpass, "I think there are three factors at work. First, there's an intense belief that the Web is a free medium. Even a 25-cent charge pushes against an unconscious belief that it should all be free. Second, customers often didn't think that the content was worth as much as the providers did. And finally, people don't want to deal with the hassles of microtransactions every time they want something. They would rather take out one subscription and be done with it."

[Back to the top](#)

### What's next?

There are two scenarios:

6/20/2005

http://www.stanford.edu/~imhnm/micronavments/micropayments.htm

## · Micropayments

The first scenario requires that one or more of these companies will rise to dominance. Which company is difficult to predict, but there are companies like Visa which would be more likely to succeed because of an established reputation through credit card services. Similarly, PayPal is an established online means of transferring money. PayPal is an online means of transferring funds directly from one person to another. It is similar to wiring money, but directly through computers and e-mail. While this setup could be altered to handle micropayments, it would need to be altered. Microsoft's passport system currently uses credit cards, but could also be modified to accommodate micropayments. All of these mentioned companies are respected names in both the computer and business world and will have to fight to become the standard of micropayments.

The alternate scenario is that micropayments do not work at all. Many companies have already gone bankrupt, and others have changed their focus away from the web. Perhaps the micropayment scheme will become fully integrated, but as it stands currently, micropayments have a micro chance of success.

[Back to the top](#)

## Additional Resources:

<http://www.w3.org/ECCommerce/Micropayments/>

<http://www.w3.org/TR/WD-mptp-951122>

[Hurwicz, Michael - http://www.webtechniques.com/archives/2001/12/hurwicz/](http://www.webtechniques.com/archives/2001/12/hurwicz/)

[Back to the top](#)

6/20/2005

http://www.huntonandwilliams.com/micropayments/micropayments.htm

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6/20/2005



• Micropayments

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